Hurricane Rita Sparks Need for Mitigation

Full Mitigation Best Practice Story

Orange County, Texas

Orange, TX – Fearing the wrath of Hurricane Rita, staff at Memorial Hermann Baptist Hospital in this southeast Texas city hurriedly evacuated patients a little more than 20 miles away to the hospital's affiliate in Beaumont, Texas. Their actions came just in time. The Category 3 storm rolled in with a vengeance on September 24, 2005, rendering the hospital inoperable for more than two weeks. That hard lesson prompted hospital officials to take mitigation measures for future events.

Hurricane Rita, which made landfall in Texas and Louisiana, was the fourth most intense Atlantic hurricane ever recorded. It also was the most intense tropical cyclone ever observed in the Gulf of Mexico. Rita's storm surge caused extensive damage along the Louisiana and extreme southeastern Texas coasts, completely destroying some coastal communities.

"We were without power for two to three weeks," said Hal Gardenhire, facilities manager for Memorial Hermann Baptist, the primary provider of health care in Orange County. "The 100-mile-per-hour winds forced water under entry doors and through weep holes above windows. We needed to find a way to keep our facility operating and to keep our patient census during a storm or other emergency situation," he said.

Hospital officials turned to the Federal Emergency Management Agency (FEMA) for a solution — and found one. The hospital was awarded a $933,750 grant through FEMA's Hazard Mitigation Grant Program (HMGP) to initiate mitigation measures. HMGP assists states and local communities in implementing long-term mitigation measures following a major disaster declaration. It provides up to 75 percent of a project's total cost and can be used to fund projects to protect either public or private property.

"We moved the power units that house the automatic transfer switches for our older section of the hospital from the basement to the second floor," said Gardenhire. "We also elevated the unit that houses the automatic transfer switches for our newly installed 1,250-kilowatt generator 12 inches above ground level. The generator can power the entire hospital."

Electrical roll-down shutters were placed above all the entry doors and windows on the hospital's first floor, eliminating the need for the lengthy boarding-up process, and deterring wind-borne debris or water intrusion.

Gardenhire said it used to take two men a day and a half to board up all the hospital's windows. The job required drilling holes in the frames, which later had to be patched up. For Hurricane Rita, the hospital was forced to pay a contractor to do the boarding-up work so hospital employees could concentrate on other jobs, such as sandbagging.

The hazard mitigation measures the hospital took after Rita changed all that. "Now all we have to do is push a button and in 15 minutes, with two men, we are all boarded up," Gardenhire said.

The hospital didn't install shutters on the second-floor windows, which caused rain to enter through a few windows during the most recent hurricane to hit the area. But, said Gardenhire, "Hurricane Ike was a breeze for us. Our equipment remained high and dry. We sustained hurricane-force winds, but our windows weren't breached and wind-driven rain didn't enter through entry doors or first-floor windows. Most important of all, we remained in operation."

Activity/Project Location

Geographical Area:	**Single County in a State**
FEMA Region:	**Region VI**
State:	**Texas**
County:	**Orange County**
City/Community:	**Orange**

Key Activity/Project Information

Sector:	**Public**
Hazard Type:	**Flooding; Hurricane/Tropical Storm**
Activity/Project Type:	**Retrofitting, Non-structural; Elevation, Utilities**
Structure Type:	**Masonry, Reinforced**
Activity/Project Start Date:	**09/2006**
Activity/Project End Date:	**Ongoing**
Funding Source:	**Hazard Mitigation Grant Program (HMGP)**
Funding Recipient:	**Critical Facility - Medical**
Application/Project Number:	**0052**

Activity/Project Economic Analysis

Cost:	**$1,245,000.00 (Actual)**
Non FEMA Cost:	**311250**

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster?	**Yes**
Federal Disaster #:	**1606 , 09/24/2005**
Federal Disaster Year:	**2005**
Value Tested By Disaster?	**Yes**
Tested By Federal Disaster #:	**1791 , 09/13/2008**
Repetitive Loss Property?	**No**

Reference URLs

Reference URL 1:	**http://www.fema.gov/government/grant/hmgp**

Reference URLs

Main Points

No Main Points were entered.

Phot of memorial Hermann Baptist Hospital located in Orange, Texas

Phot of new generator installed following Hurricane Rita

Hal Gardenhire, Facility Manager demonstrates ease of operation of roll-down shutters on hospital entry doors

Photo of electri cal utility units whcih were move from the basement to the second floor of hospital